

Hideaki OHBA\*: The Philippine species of *Sedum* (Crassulaceae)\*\*

大場秀章\*: フィリッピンのマノンングサ属\*\*

Merrill (1905) described a new species, *Sedum australe*, from Luzon and reported *S. formosanum* N.E. Brown to occur in the north of Luzon. Later he (1923) omitted *S. formosanum* from the Philippine flora. Clausen (1946) proposed a new name, *S. ambiflorum*, for *S. australe* Merrill, because the latter is apparently a later homonym of a Central American *S. australe* Rose published in 1903. In the Flora Malesiana, Baker (1951) regarded *S. ambiflorum* as the only representative of the genus *Sedum* in the Philippines as well as the Malesian region. Recently Hatusima (1966) reported again *S. formosanum* to occur in the Philippines (Batan Island).

Although *S. ambiflorum* was tentatively reduced to *S. Aizoon* L. by Fröderström (1935), the Philippine species greatly differs from the latter by the low-growing habit, the smaller, spatulate, entire leaves, and the lack of hypogaen woody rootstocks. Clausen (1946) considered *S. ambiflorum* to be related with *S. formosanum* and *S. actinocarpum* Yamamoto. From *S. formosanum*, *S. ambiflorum* differs in having simple flowering stems and much shorter styles. *S. actinocarpum* is closely related with *S. ambiflorum*, but is distinguished from the latter by the 5-merous flowers, the longer styles, the larger inflorescences, and the robust habit. *S. actinocarpum* is, however, considered to be conspecific with *S. erythrospermum* Hayata (incl. *S. arisanense* Yamamoto), because both species have flowers indistinguishable from each other. Thus *S. ambiflorum* is regarded as a subspecies of *S. erythrospermum*.

Among the specimens determined as *S. australe* Merrill, I found a very different species. This species appears to be related with the Formosan *S. parvisepalum* Yamamoto, but differs slightly from the Formosan species in having the narrowly obovate to oblanceolate leaves and the smaller flowering stems. Thus, this Philippine species is regarded as a subspecies of *Sedum parvisepalum* and named as subsp. *philippinense*. *S. parvisepalum*

\* Department of Botany, University Museum, University of Tokyo, Hongo, Tokyo 113. 東京大学総合研究資料館植物部門.

\*\* 本研究の一部は昭和52年度文部省科学研究費(総合 A234043)による.

(incl. subsp. *philippinense*) is clearly distinguishable from both *S. erythrospermum* (incl. subsp. *australe*=*S. ambiflorum*) and *S. formosanum* as follows:

Flowers 5-merous. Sepals connate (ca. 0.5 mm in length), linear-lanceolate—very narrowly oblong. Styles long (ca. 1.2 mm long). Flowering stems with a short sterile branch or simple. Cauline leaves oblanceolate—narrowly obovate .... *S. parvisepalum* subsp. *philippinense*

Flowers mostly 4-merous. Sepals distinct, spatulate. Styles very short (less than 0.5 mm long). Flowering stems simple. Cauline leaves mostly spatulate ..... *S. erythrospermum* subsp. *australe*

Flowers 5-merous. Sepals distinct, spatulate(—oblong). Styles long (0.9–1.2 mm long). Flowering stems di- or tri-chotomously forked. Cauline leaves spatulate—broadly obovate ..... *S. formosanum*

1) ***Sedum erythrospermum*** Hayata subsp. ***australe*** (Merrill) H. Ohba, stat. nov.

*Sedum australe* Merrill in Publ. Bureau Govern. Lab. Manila no. 29, 16 (1905), non Rose (1903); in Philip. Journ. Sci. Bot. 5: 350 (1910); Enum. Philip. Fl. Pl. 2: 217 (1923).

*Sedum ambiflorum* R.T. Clausen in Cact. Succul. Journ. 18: 58 (1946)—C.A. Baker in Fl. Mal., Ser. 1, 4: 197 (1951), pro parte.

Specimen examined. Luzon. Prov. Benguet, Mt. Santo Tomas. On ledges and gravelly hillside near the summit of the mountain (A.D.E. Elmer 6568, PNH 114365—Holotype of *Sedum australe* Merrill).

2) ***Sedum formosanum*** N.E. Brown in Gard. Chron. N. Ser. 24: 134 (1885)—Forbes et Hemsley in Journ. Linn. Soc. 26: 285 (1887)—Hayata, Ic. Pl. Formos. 2: 12 (1912)—Praeger in Not. Bot. Gard. Edinb. 13: 83 (1921); in Journ. Roy. Hort. Soc. 46: 295 (1921)—R.-Hamet in Candollea 4: 32 (1929)—Berger in Engl. et Prantl, Nat. Pflanz.-fam. 2 Aufl. 18a: 460 (1930)—Fröd. in Act. Hort. Gothob. 6: append. 97, fig. 778–784, Pl. 62 (1931)—Ohwi, Fl. Jap. Engl. ed. 497 (1965), rev. ed. 692 (1965)—Hatusima in Mem. Fac. Agr. Kagoshima Univ. 5: 31 (1966); Fl. Ryukyus 301 (1971)—Moran in Walker, Fl. Okinawa 508 (1976).

*Sedum loochooense* Makino apud Kuroiwa in Bot. Mag. Tokyo 14: 112 (1900), nom. nud.

*Sedum Mariae* R.-Hamet in Fedde, Repert. 8: 143 (1910).

Specimen examined from the Philippines. Batan Island. Frequent on the littoral rocky cliff (Hatusima & Sato 28624, KAG).

Distr. Philippines (Batan Isl.), Formosa, and S. Japan (Ryukyu & Kyushu).

3) *Sedum parvisepalum* Yamamoto subsp. **philippinense** H. Ohba, subsp. nov.

*Sedum australe* Merrill sensu van Steen. in Bull. Jard. Bot. Buit. Ser. 3, 13: 195 (1934).

*Sedum ambiflorum* R.T. Clausen sensu C.A. Baker in Fl. Mal., Ser. 1, 4: 197 (1951), pro parte.

A typo (subsp. *parvisepalum*) foliis anguste obovatis—oblanceolatis [non lineari-oblanceolatis], caulibus brevioribus quam 15 (nec 25) cm longioribus, nec longe repentibus, et petalis paulo (longitudine ca. 1 mm) longioribus differt. A *Sedo erythrospermo* subsp. *australi* (Merrill) H. Ohba floribus 5 (non 4)-partibus, ovariis longi-styliferis (stylo ca. 1.2 mm longo), sepalis leviter (altitudine ca. 0.5 mm) connatis, lineari-lanceolatis (nec spatulatis), foliis caulium vulgo oblanceolatis (nec spatulatis) statim dignoscendum.

Herba perennis usque 15 cm alta. Caules parte basi repentis interdum ramificantes, radices fibrosas percurrentes; parte adscendenti vel suberecta glabri laeves 1.0–1.5 mm lati, simplices aut saepe ramulum sterilem brevem solum edentes. Folia alternata sessilia paulum calcarata (calcar breviora quam 0.5 mm longo), complanata angusti-obovata—oblanceolata apice obtusa basi attenuata margine integra, glabra laevia; costa non prominens. Inflorescentiae terminales trichotome cyma compositae, floribus numero circa 30–50 ornatae; 3–5 cm longae lataeque pauci-bracteatae, primariis axibus 3–6 cm longis adscendentibus. Bracteae obovatae—oblanceolatae 2–6 mm longae 1–4 mm latae. Flores 5-partiti hermaphroditi ± sessiles aestivales, sub-anthesi ca. 10 mm lati, glabri laeves. Sepala viridia crassi-herbacea basi leviter (longitudine ca. 0.5 mm) connata ecalcarata ± inaequilonga 2.5–3.5 mm longa parte mediani 0.5–0.7 mm lata, lineari-lanceolata—angustissime oblonga apice rotundata, loborum basi paulum dilatata, margine integra ± complanata per anthesin adscendentia—patentia. Petala aurea basi (longitudine ca. 0.2–0.5 mm) connata fere aequimagna lanceolata parte apicali acuta—acuminato-acuta [apice ipso minutissime mucronulato], 5–6.5 mm longa 0.8–1.0 mm lata per anthesin adscendentia, ± cymbiformia. Stamina suberecta, petalis distincte breviora; filamentis oppositipetalis ca. 2.5 mm longis ca. 1 mm supra basi

orientibus; alternipetalis 3.5–3.7 mm longis; antheris ovoideis ca. 0.6 mm longis ante anthesin rubris. Glandulae late oblongae—quadratae ca. 0.5 mm longae ca. 0.3 mm latae  $\pm$  planae (?) albo-cremeae. Gynoecia 4–5 mm longa 2.5–3.5 mm lata, basi 0.7 mm connata, ovario ventraliter gibboso ca. 1 mm lato, stylo ca. 1 mm longo, stigmatibus epapillato; placenta submarginali. Ovula in quoque loculo (20–)24(–34), ca. 0.4 mm longa, funiculo ca. 0.1 mm longo. Folliculi badii expansi 4–5 mm longi ca. 2.5 mm lati, stylo persistente. Semina badia oblongo-cylindracea apice rotundata 0.5–0.7 mm longa, testa omnino minute puncticulata.

Hab. Philippines. Luzon. Prov. Benguet: Pauai to Baguio, alt. 5800 ft. On dry boulders steep slopes. Flowers yellow (E.D. Merrill 4861, BO; PNH-Holotypus); Between Baguio and Bontoc. On rocks along steep slope in dense sods (van Steenis 17950, PNH, BO); Baguio (R.S. Williams 1117, PNH); Pauai, alt. 1000 ft. (E.A. Mearns 4451, PNH); Mt. Pauai (Mrs. Muni 5644, PNH).

I am deeply indebted to Associate Prof. H. Ohashi, University of Tokyo, who gave me valuable advice and criticism. I express my sincere thanks to Prof. K. Iwatsuki, Kyoto University, for his helpful counsel. Appreciations are also due to the directors of Herbarium Bogoriense, Bogor, Indonesia (BO), Philippine National Herbarium, National Museum, Philippines (PNH), and the Herbarium, Faculty of Agriculture, Kagoshima University (KAG), for their kind permission to study their collections.

#### Literature cited

- Baker, C.A. 1951. Crassulaceae. *In* Flora Malesiana, Ser. 1, 4: 197–202.  
 Clausen, R.T. 1946. Nomenclatural changes and innovations in the Crassulaceae, I. *In* Cact. Succul. Journ. 18: 58–61. Fröderström, H. 1935. The genus *Sedum* L. part. 4. *In* Act. Hort. Gothob. 10: append. 262 pp.  
 Hatusima, S. 1966. An enumeration of the Plants of Batan Island, N. Philippines. *In* Mem. Fac. Agr. Kagoshima Univ. 5: 13–70. Merrill, E.D. 1905. *Sedum australe* sp. nov. in New or noteworthy Philippine plants III. *In* Publ. Bureau Govern. Lab. Manila no. 29, 16. — 1923. Crassulaceae. *In* An Enumeration of Philippine Flowering Plants 2: 217.

\* \* \* \*

今日までフェリピンには2種のマンネングサ属を産することが明らかにされてきた。

そのひとつはハママンネングサ (*Sedum formosanum*) で、他は特産の *S. ambiflorum* R. T. Clausen である。

*S. ambiflorum* は最初 Merrill (1905) によって *S. australe* の学名で発表された。ところがこの学名には先行名があるため、後に Clausen (1946) は *S. ambiflorum* という新名を与えた。Fröderström (1935) は *S. ambiflorum* を暫定的に *S. Aizoon* L. (キリンソウ、広義) の異名とした。Clausen は *S. ambiflorum* をハママンネングサおよび *S. actinocarpum* Yamamoto に関連があるとみた。私は花部器官を中心に再検討した。その結果、*S. ambiflorum* は台湾特産の *S. erythrospermum* Hayata (*S. actinocarpum* は同種と考えられる) に最も近いことが判った。しかし両者は分布域が異なる。花序の大きさ、花部器官の員数、花柱の長さ等にも違いが認められる。そこで両者を同一種内の亜種とし、フィリピンのものに *S. erythrospermum* subsp. *australe* の新名を与えた。

国立フィリピン植物標本館 (PNH) とボゴール植物標本館 (BO) の標本を調べたところ、分類学上未知の1種が従来 *S. ambiflorum* と混同されてきたことが判った。これは台湾の *S. parvisepalum* Yamamoto と同種ではあるが、全体の大きさ、葉形、花卉の長さ等に違いが認められる。そこでフィリピンのものを亜種とし、*S. parvisepalum* subsp. *philippinense* と命名した。

フィリピンには現在3種のマンネングサ属を産することが明らかになった。3種とも台湾にも分布し、そのうち2種は台湾のものから亜種として区別される。他の1種(ハママンネングサ)は琉球を通して九州まで分布している。フィリピンはアジアにおけるマンネングサ属の分布の南限で、他のマレーシア地域にこの属は自生しない。特産2亜種の生育地の環境や生活の実態はほとんど判っていない。

#### □田川基二博士 Motozi Tagawa 1908~1977

田川基二先生は1977年7月19日急性心不全のため逝去された。享年69歳であった。

先生は1908年4月11日に大阪でお生まれになり、京都府立一中・第三高等学校を経て、1930年京都帝国大学理学部植物学科に進まれ、卒業後は約6年間大学院に在籍された。1939年京都大学副手となられ、その後講師・助教授・教授に昇任されて、1972年停年により退官されるまで京都大学に勤務された。

先生が植物学に興味を持たれたのはずい分早くからで、三高在学中にはシダ植物の研究を始める決心をされたように伺っている。京大在学中の1932年、植物分類地理学会の創設に参加され、植物分類・地理の1巻1号に処女論文の「東亜羊歯植物考察 I」を発表された。それ以後、僅かの例外を除いて、発表された著書・論文はそのほとんどがシダ植物に関するものである。植物研究雑誌にも「東亜羊歯植物雑考 (I)~(VII)」(1936~38)、「羊歯類雑記 (1)~(11)」(1949~1961)をはじめ、クジャクシダ属・ギ